

MIMO SYSTEM WITH MULTIPLE SPATIAL MULTIPLEXING MODES

ABSTRACT

A MIMO system supports multiple spatial multiplexing modes for improved performance and greater flexibility. These modes may include (1) a single-user steered mode that transmits multiple data streams on orthogonal spatial channels to a single receiver, (2) a single-user non-steered mode that transmits multiple data streams from multiple antennas to a single receiver without spatial processing at a transmitter, (3) a multi-user steered mode that transmits multiple data streams simultaneously to multiple receivers with spatial processing at a transmitter, and (4) a multi-user non-steered mode that transmits multiple data streams from multiple antennas (co-located or non co-located) without spatial processing at the transmitter(s) to receiver(s) having multiple antennas. For each set of user terminal(s) selected for data transmission on the downlink and/or uplink, a spatial multiplexing mode is selected for the user terminal set from among the multiple spatial multiplexing modes supported by the system.